COBOL-400

FOR THE COMPATIBLES/400 FAMILY OF COMPUTERS

GENERAL ELECTRIC

COBOL-400

FOR THE COMPATIBLES/400 FAMILY OF COMPUTERS

COBOL-400, the Common Business Oriented Language, is available on General Electric's Compatibles/400 Information Processing systems. This universally-accepted business-oriented language is upward compatible through the entire GE-400 family of computers and gives you a solid, working partner for compatible hardware.

GENERAL ELECTRIC COBOL-400 FILLS SPECIFIC NEEDS

- The need for programming systems that can be processed on future, more powerful machines with a minimum of conversion costs in reprogramming and/or training. This is especially significant if you start modestly with a GE-415 and can foresee a possible expansion to a GE-435. Or, for that matter, any other large-scale General Electric Information Processor.
- The need for efficient translation of a programming system from one computer model to another of a different manufacturer.
- The need for a capability to meet the rapidly changing and expanding requirements of management which precludes constant revision and augmentation of programming systems. With COBOL-400, such changes and additions can be made with minimum time and costs.
- The need for a manner of producing extensive programming systems in a short period of time.

SPECIFIC ADVANTAGES

1. COBOL-400 programs are written in precise, easily learned English words and phrases. The language provides a clear method of expressing a problem, or "communicating" with a computer.

2. COBOL-400 programs can be run on another computer with minimum modification even though computer hardware characteristics are different.

3. COBOL-400 provides excellent documentation for problem definition and solution. Work started by one programmer and continued and/or completed by another is easily accomplished.

4. COBOL-400 simplifies the costly, time-consuming process of program testing. If necessary, it can be done efficiently by someone other than the original programmer.

5. COBOL-400 promotes use of standardized terminology among non-technical personnel and programmers thus inviting closer understanding of problems being solved.

6. COBOL-400 decreases training costs and significantly reduces retraining and reprogramming costs. Once a programmer is trained in COBOL techniques, he can change to another computer and use the same techniques.

HOW COBOL-400 WORKS

COBOL-400 is a communication vehicle. It is easy to learn and use. Briefly, here's how it works:

The programmer writes a COBOL-400 "source program" composed of English sentences and paragraphs, following the conventions of a standard reference format, to describe the data to be processed and to specify the required procedures. The source program is keypunched on cards which become input to the computer under control of the COBOL-400 compiler program (already loaded into the computer by the GE-400 Operating System). As output the COBOL-400 compiler produces an "object program" on either punched cards or magnetic tape. The object program is the actual sequence of machine instructions needed to accomplish the functions specified in the source program.

Additionally, the compiler produces an edited listing which includes a print-out of the English source program in the reference format. Another very important compiler function is to analyze the source program for clerical errors and to print error comments on any source program language errors it can detect.

The source program is sub-divided into four divisions specifying:

The identification of the program (IDENTIFICATION DIVISION)

The equipment to be used (ENVIRONMENT DIVISION)

The description of data to be processed (DATA DIVISION)

The sequence of procedures to be executed (PROCEDURE DIVISION)

For a complete, detailed description of each of these elements, see CPB-1001.

COBOL-400 OPERATING SYSTEM OPTIONS

COBOL-400 options specify deviations from a well-defined "normal" mode of compilation. Options include:

- Produce a Journal Tape containing all intermediate output of the compiling process;
- Produce an object program that includes object program debugging statements;
- Produce the object program on cards only;
- Produce the object program on both magnetic tape and cards, or tape only;
- Copy parts of the source program from a separate COBOL LIBRARY tape;
- Read input from magnetic tape.

HARDWARE REQUIREMENTS

Hardware requirements differ but slightly between basic COBOL-400 and that required for COBOL-400 using the options. Configurations include:

Basic COBOL-400	COBOL-400 with options
ANY ONE OF THE COMPATIBLES/400 WITH	
8192 words of core memory (larger memory if desired)	8192 words of core memory (larger memory if desired)
4 magnetic tape units	5 magnetic tape units
Card Reader	Card Reader*
Card Punch	Card Punch*
Printer	Printer*
Console Typewriter	Console Typewriter

*(Magnetic tape unit may be substituted)

BASIS FOR COBOL-400

COBOL-400 is based on COBOL-61 (the latest CODASYL specifications) which consist of:

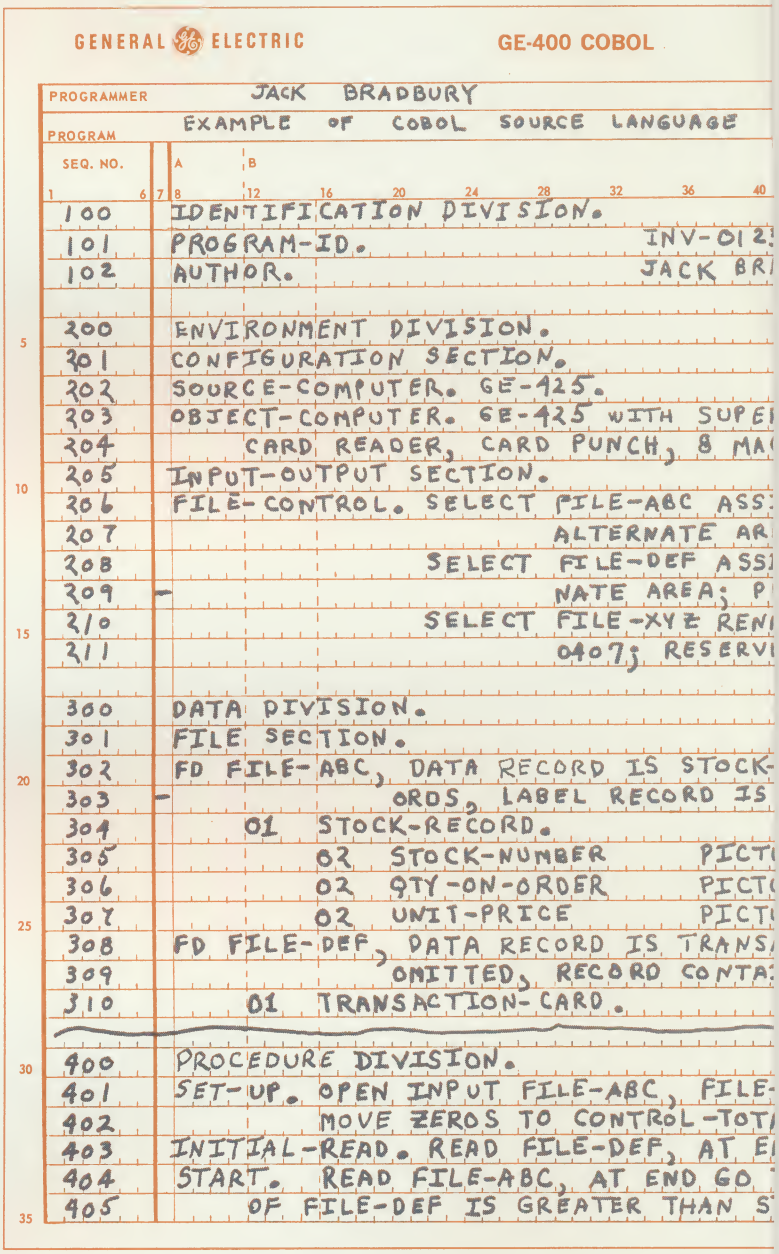
REQUIRED COBOL — those elements which must be implemented by any company producing a COBOL compiler.

ELECTIVE COBOL — those elements which can be implemented at the manufacturer's discretion.

COBOL EXTENSIONS—elements of COBOL which have been added to the language since the publication of COBOL-61.

MORE INFORMATION

Detailed information is available at all Computer Department District Offices listed on back page, or call or write the Computer Department, Phoenix, Arizona.



Coding Explanation

LOCATION PHOENIX, ARIZONA PAGE OF
DATE 6/15/64

```
44   48   52   56   60   64   68   72
.
ADBURY
VISOR CONTROL, MEMORY SIZE 32K,
NETIC TAPES.
GN TO 0404, 0405; RESERVE 1
A; BLOCKS ARE SERIAL-NUMBERED.
GN TO 0100; RESERVE NO ALTER
RIORITY IS 1.
MING FILE-ABC; ASSIGN TO 0406,
 1; PRIORITY IS 2.
-RECORD, BLOCK CONTAINS 20 REC
 STANDARD.
ORE IS X(12).
URE IS 9(8).
ORE IS 99V99.
CTION-CARD, LABEL RECORD IS
NS 80 CHARACTERS.
DEF; OUTPUT FILE-XYZ.
LS.
D GO TO END-RTN-1.
O END-RTN-3. IF STOCK-NUMBER
OCK-NUMBER OF FILE-ABC, GO TO
```

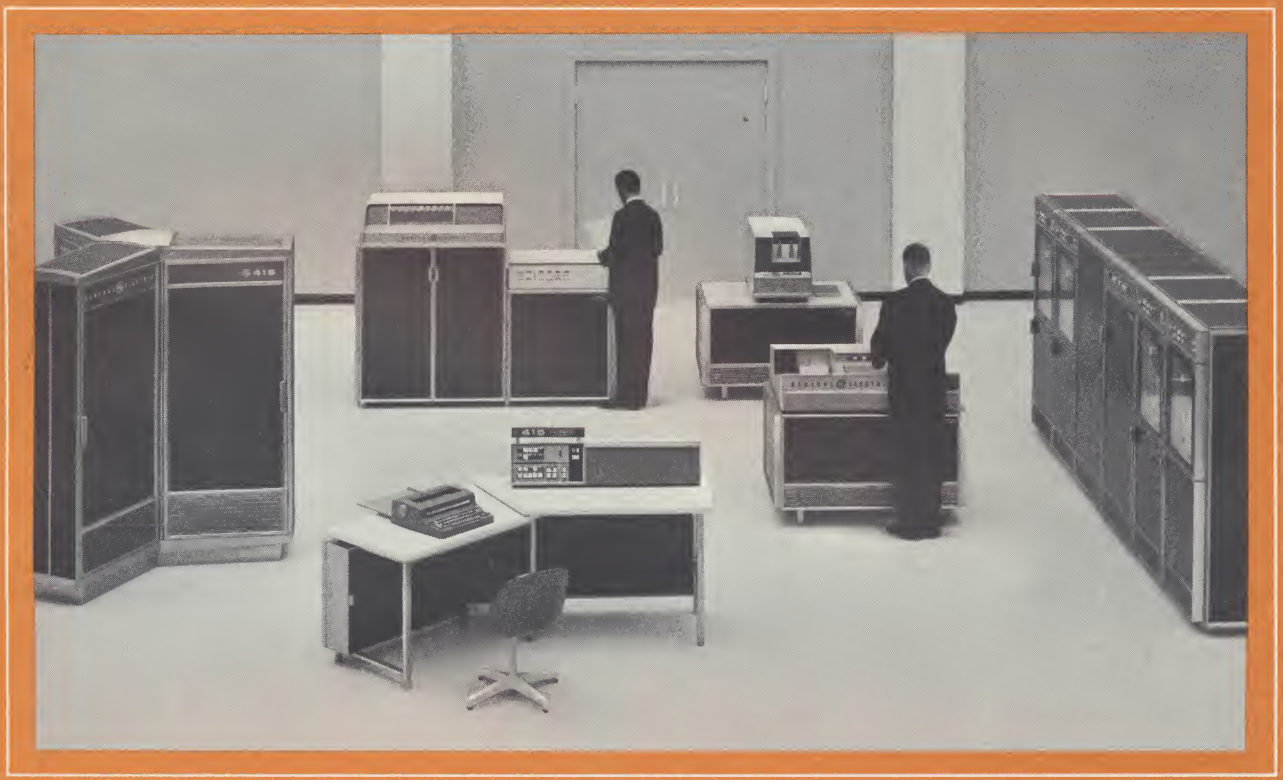
After compilation, the first 8 characters of "program name" will be used by the Program Monitor Routine as a search key for finding and loading the object program from a master instruction tape.

Compilation made on GE-425
Specification of computer that will use the object program.

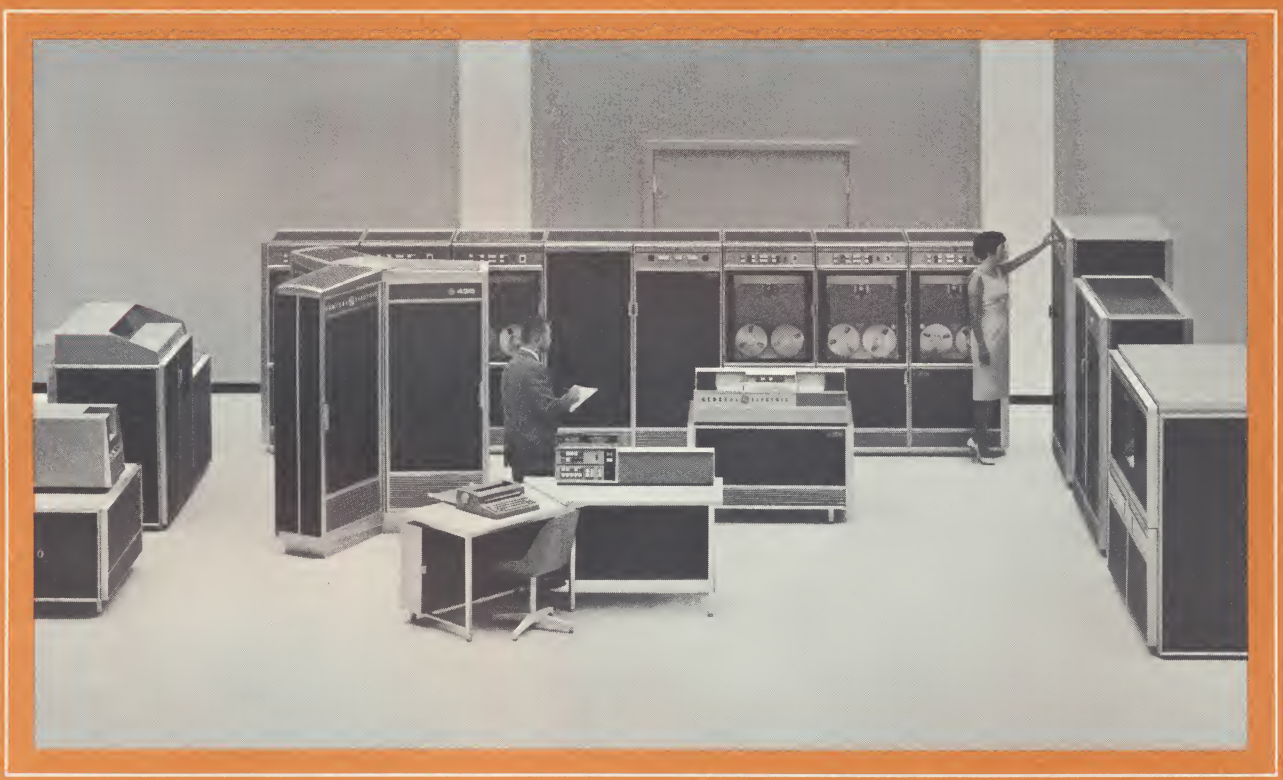
This paragraph contains one sentence for each file to be processed by the object program. The type of hardware device assigned to a file is indicated by the first two digits of the four octal digit device numbers following the word ASSIGN.

Assignment of record names
Defines how many integers in a record in the blocks.
Standard label records are to be used.

Typical imperative statement.
Typical conditional statement used in processing.
Directs the operations into the basic assembly program.



COBOL-400 IS AVAILABLE ON ALL GENERAL ELECTRIC COMPATIBLES/400 COMPUTERS, AND IS UPWARD COMPATIBLE THROUGH THE ENTIRE GE-400 FAMILY.



OFFICES

ATLANTA, GEORGIA
BOSTON, MASSACHUSETTS
CHARLOTTE, NORTH CAROLINA
CHICAGO, ILLINOIS •
CINCINNATI, OHIO
CLEVELAND, OHIO •
COLUMBUS, OHIO
DALLAS, TEXAS •
DAYTONA BEACH, FLORIDA
DENVER, COLORADO
DES MOINES, IOWA
DETROIT, MICHIGAN
HONOLULU, HAWAII
HOUSTON, TEXAS
HUNTSVILLE, ALABAMA
INDIANAPOLIS, INDIANA
JACKSONVILLE, FLORIDA
KANSAS CITY, MISSOURI
LOS ANGELES, CALIFORNIA
LOUISVILLE, KENTUCKY
MEMPHIS, TENNESSEE
MINNEAPOLIS, MINNESOTA
NEW ORLEANS, LOUISIANA
NEW YORK, NEW YORK •
OKLAHOMA CITY, OKLAHOMA
PHILADELPHIA, PENNSYLVANIA
PHOENIX, ARIZONA •
PITTSBURGH, PENNSYLVANIA
PROVIDENCE, RHODE ISLAND
SALT LAKE CITY, UTAH
SAN FRANCISCO, CALIFORNIA
SCHENECTADY, NEW YORK •
SEATTLE, WASHINGTON
ST. LOUIS, MISSOURI
SYRACUSE, NEW YORK
TALLAHASSEE, FLORIDA
WASHINGTON, D. C. AREA •

Australia:
Australian General Electric Pty. Ltd.
103 York Street, Sydney •

552 Lonsdale Street, Melbourne •

Canada:
Canadian General Electric Co., Ltd.
Electronic Equipment and Tube Dept.
214 King Street West
Toronto, Ontario, Canada

Europe:
International General Electric S.A.
Data Automation Department
1, rue du Temple
Geneva, Switzerland

or write Drawer 270,
Phoenix 1, Arizona

• Information Processing Centers in these cities offer complete computer services.

Progress Is Our Most Important Product

GENERAL ELECTRIC

COMPUTER DEPARTMENT

CPB-390A LITHO IN U.S.A.